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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/706,850

11/12/2003

Christopher J. Buehler

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EXAMINER

CZEKAJ, DAVID J

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/706,850	<b>Applicant(s)</b> BUEHLER ET AL.	
	<b>Examiner</b> DAVID CZEKAJ	<b>Art Unit</b> 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 25-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

On pages 11-12, applicant argues that Sengupta fails to disclose concurrently tracking, based on an analysis of the monitored environment over time and independent of calibration among the image sensors and monitored environment. While the applicant's points are understood, the examiner respectfully disagrees. See for example Sengupta column 3, line 60 – column 4, line 45. There Sengupta discloses that a controller determines which cameras field of view includes the object and selects the appropriate camera (camera handoff) when the object traverses from one field of view to the next. The camera handoff is automated via a figure tracking system which associates the characteristics of an area, such as color combinations, to determine the locations of the area as the target moves about the camera's field of view. By using the color combinations to track the object and subsequently select the appropriate camera based on the position of the object or area, Sengupta is tracking objects independent of calibration among the image sensors and monitored environment since the color is independent of the image sensors and environment. Therefore the rejection has been maintained.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 8-9, 12-13, 15-16, 19, 25-26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta et al. (6359647), (hereinafter referred to as “Sengupta”) in view of Tserng (6570608).

Regarding claim 1, Sengupta discloses an apparatus that relates to a system for controlling multiple video cameras (Sengupta: column 1, lines 8-10). This apparatus comprises “receiving a plurality of series of video frames generated by a plurality of image sensors, each having a field-of-view, which monitor portions of a monitored environment” (Sengupta: figure 1; column 3, lines 38-40 and 60-65, wherein the plurality of sensors are the plurality of cameras), and “concurrently tracking, based on an analysis of the monitored environment over time and independent of calibration among the image sensors and monitored environment, an object within the environment as the objects move between fields-of-view and an object within one field-of-view based on the plurality of received series of frames” (Sengupta: column 3, lines 38 – column 4, line 45, wherein the tracking between the fields-of-view is the selecting the camera as the object traverses from one camera’s field-of-view to another. By tracking between the fields-of-view, Sengupta is also tracking the object within the image in order to be able to determine when the object has traversed the different fields. The tracking independent of the calibration is the camera handoff. The handoff is done using a controller and not done using the calibration tools (pan, zoom, and tilt) of the camera. Further, by using the color combinations to track the object and subsequently select the appropriate camera

based on the position of the object or area, Sengupta is tracking objects independent of calibration among the image sensors and monitored environment since the color is independent of the image sensors and environment). However, this apparatus lacks tracking the plurality of objects as claimed. Tserng teaches that prior art smart cameras will need new algorithms to implement the smart monitoring functions (Tserng: column 1, lines 25-24). To help alleviate this need, Tserng discloses an apparatus in which Tserng “tracks a plurality of objects” (Tserng: figures 10-12; column 6, lines 62-65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to take the apparatus disclosed by Sengupta and add the tracking taught by Tserng in order to be able to successfully track more than one object throughout a scene.

Regarding claim 2, Sengupta discloses “the image sensors are cameras” (Sengupta: figure 1).

Regarding claim 8, Tserng discloses “generating tracking metadata including one of: object track data” (Tserng: column 7, lines 7-15, wherein the object track data is the motion graph which indicates the track, or path, the object traverses).

Regarding claim 9, Tserng discloses “selecting a rule set to analyze tracking metadata and evaluating, using a rules engine, the metadata based on the rule set” (Tserng: column 7, lines 7-15. By applying event labels such as

Enter, Exit, Rest, Move, ect., Tserng is selecting a rule set to analyze the motion graph to determine the correct label to apply to the specific event).

Regarding claim 12, although not disclosed, it would have been obvious to select the rule set to detect hazards to children (Official Notice). Doing so would have been obvious in order to help better provide safety and security to a wide range of people.

Regarding claim 13, although not disclosed, it would have been obvious to select the rule set to monitor public safety (Official Notice). Doing so would have been obvious in order to help better provide safety and security in a wide variety of applications.

Regarding claim 15, note the examiners rejection for claims 1 and 8.

Regarding claim 16, Tserng discloses “a rules engine in communication with the tracking module and receiving the tracking metadata” (Tserng: column 7, lines 7-15, wherein the tracking metadata or motion graph is analyzed using a set of rules which determine the correct labels to apply to the detected events).

Regarding claim 19, note the examiners rejection for claims 12 and 15.

Regarding claims 25 and 26, although not disclosed, it would have been obvious for the fields-of-view to be non-overlapping (Official Notice). Doing so would have been obvious in order to provide a wider range of coverage.

Regarding claim 29, note the examiners rejection for claims 25-26.

4. Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta et al. (6359647), (hereinafter referred to as “Sengupta”) in view of Tserng (6570608) in further view of Marks et al. (5845009), (hereinafter referred to as “Marks”).

Regarding claim 3, note the examiners rejection for claim 1, and in addition, claim 3 differs from claim 1 in that claim 3 further requires tracking objects based on a probability. Marks teaches that prior art tracking systems do not provide the performance desired for various tracking applications (Marks: column 1, lines 50-57). To help alleviate this problem, Marks discloses an apparatus comprising “tracking objects based on a probability that an object included in one video frame at a first point in time will be included in a video frame at a second point in time” (Marks: column 5, lines 40-44; column 6, lines 25-28; column 7, lines 33-40, wherein the weighted probabilities are used to indicate if the object is at a first and second point). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the probabilities taught by Marks in order to increase the performance of tracking systems.

Regarding claim 4, Tserng in view of Marks disclose “storing a plurality of blob states over time each including the number of objects included in the blob and a blob signature” (Tserng: column 11, lines 26-40, wherein the blob states are the car and object blobs; the number of objects is the number of blobs stored in memory, in this case 2; the blob signature is the blob location) and “storing a plurality of transition likelihood values representing the probability that objects

within one blob at one instant correspond to objects within other blobs at other time instants” (Tserng: column 13, lines 15-27, wherein the blobs and objects are analyzed to find a correlation; Marks: column 5, lines 40-44; column 6, lines 25-28; column 7, lines 33-40, wherein the likelihood values are the probabilities).

Regarding claim 5, Marks discloses “altering the stored transition probabilities upon analysis of additional video frames” (Marks: figure 2; column 4, lines 25-45; column 5, lines 40-44; column 6, lines 18-25, wherein by continually capturing new images, the probabilities are calculated thus changing or altering the weighted total probability).

Regarding claim 6, Tserng discloses “storing object data indicating correspondences between objects and blob states” (Tserng: column 13, lines 15-27, wherein the correspondence is the linkage indicating the correspondence between the object and the blob)

Regarding claim 7, Tserng in view of Marks disclose “generating a tracking solution based on the blob states and transition probabilities” (Tserng: column 6, lines 62-67; column 7, lines 7-15; Marks: column 6, lines 25-28).

5. Claims 10-11, 17-18, 20, 27-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta et al. (6359647), (hereinafter referred to as “Sengupta”) in view of Tserng (6570608) in further view of Brodsky et al. (6731805), (hereinafter referred to as “Brodsky”).

Regarding claim 10, note the examiners rejection for claim 1, and in addition, claim 10 differs from claim 1 in that claim 10 further requires monitoring



parking lot security. Brodsky teaches that surveillance is used in many settings such as parking lots (Brodsky: column 1, lines 15-18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the parking lot security taught by Brodsky in order to provide protection in a wide variety of locations.

Regarding claim 11, Brodsky discloses “selecting a rule to detect property theft” (Brodsky: column 1, lines 15-18).

Regarding claim 17, note the examiners rejection for claims 10 and 15.

Regarding claim 18, note the examiners rejection for claims 11 and 15.

Regarding claim 20, note the examiners rejection for claims 11 and 15.

Regarding claim 27, note the examiners rejection for claims 25-26.

Regarding claim 28, note the examiners rejection for claims 25-26.

Regarding claim 30, note the examiners rejection for claims 25-26.

6. Claims 14, 21, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta et al. (6359647), (hereinafter referred to as “Sengupta”) in view of Tserng (6570608) in further view of Carlbom et al. (6441846), (hereinafter referred to as “Carlbom”).

Regarding claim 14, note the examiners rejection for claim 1, and in addition, claim 1 differs from claim 14 in that claim 14 further requires determining merchandizing and operations statistics. Carlbom teaches that trajectories can be used to determine merchandizing and operations statistics (Carlbom: column 1, lines 25-34, wherein the merchandizing and operations

statistics are the advertisement effectiveness and consumer traffic reports).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the tracking taught by Carlbom in order to better help provide feedback of different product placement locations.

Regarding claim 21, note the examiners rejection for claims 14 and 15.

Regarding claim 31, note the examiners rejection for claims 25-26.

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID CZEKAJ whose telephone number is (571)272-7327. The examiner can normally be reached on Mon-Thurs and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone

Art Unit: 2621

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dave Czekaj/

Art Unit 2621

/Mehrdad Dastouri/

Supervisory Patent Examiner, Art Unit 2621

